



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/987,402	11/14/2001	Shigeru Sautome	Q67281	7038
7590 01/10/2006 SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC 2100 Pennsylvania Avenue, N.W. Washington, DC 20037-3202			EXAMINER UPRETI, ASHUTOSH	
			ART UNIT 2623	PAPER NUMBER

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/987,402	SAOTOME ET AL.	
	Examiner	Art Unit	
	Ashutosh Upreti	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 1-4, 9-12 and 26-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5-8, 13-25 and 29-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/14/01 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's amendment filed September 7, 2005, has been entered and made of record.

The applicant has added new claims. Of these new claims, claims 26-28 will not be examined as they belong to a non-elected group (they depend from claim 1 which is in a group of claims that was not elected by the applicant).

Applicant's arguments with respect to claims 5-8 and 13-25 have been considered but are moot in view of the new ground(s) of rejection.

In view of applicant's amendments to the specification, all previous objections to the specification are withdrawn.

Claim Objections

Claims 15, 20, 29, 30 and 34 are objected to because of the following informalities:

As to claim 15, on line 1 "fefined" is ungrammatical (changing this to "defined" would cure this problem).

As to claim 20, it is unclear exactly what is meant by the claim. In particular, it is not clear to the examiner what is meant by the portion "detection processing condition of filtering properties of a". Changing this to "detection processing condition is the filtering properties of a", may cure this problem, but the examiner is not sure if that is what applicant intended.

As to claims 29 and 30, on line 2, "prcessing" is ungrammatical (changing this to "processing" would cure this problem).

As to claim 34, on line 1, "phtographing" is incorrect. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In both claims, the term "part by part" is unclear. The examiner could not find adequate explanation in the specification or in the claims so that one of ordinary skill in the art could understand what is being claimed. Describing exactly what is meant by the term or re-wording it to explain the concept in a clearer fashion in the claims would cure this problem.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2623

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 7, 8, 13, 15-22, 24, 25, 29, 30 and 34 are rejected under 35 U.S.C.

103(a) as being unpatentable over Nakajima (USPN 5,761,334) in view of Ellis (USPN 6,718,053).

As to claim 5, Nakajima discloses a method of detecting a prospective abnormal shadow in an image of an object (column 37, lines 63-65) at a predetermined detecting level (column 44, lines 4-10).

Nakajima does not expressly disclose changing the detecting level according to photographing conditions under which the image of the object is taken.

Ellis discloses changing the detecting level according to photographing conditions under which the image of the object is taken (column 17, lines 26-29 – here the threshold is changed based on the variation in the light source, which is a photographing condition. As stated on line 13 of column 17, the purpose of using the threshold is to separate an object of interest, which means it is equivalent to a detecting level).

It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to change the detecting level as in Ellis, when detecting prospective abnormal shadows in Nakajima, as they both involve detection from medical images. Doing so would help accommodate variation in photographing conditions like light sources (column 17, lines 26-29 of Ellis) and also help overcome the

Art Unit: 2623

problem of where to set the threshold level (column 17, lines 19-20 of Ellis), thus providing motivation.

As to claim 7, it is inherent that the detecting level is changed part by part of the image. The examiner is unsure exactly what is meant by this claim (as mentioned in the 35 USC 112 rejection above) but reads it as using a particular detecting level on each part of an image. This is inherent because when an image is compared to a threshold, each pixel in the image is compared to a detecting level, meaning that it is being done "part by part" or "pixel by pixel".

As to claim 8, Nakajima as modified above, further discloses that the image of the object is a mammogram (Figure 27A).

As to claim 13, Nakajima discloses a system for carrying out the method of detecting a prospective abnormal shadow in a radiation image (column 37, lines 63-65), said system comprising:

a prospective abnormal shadow detecting means which detects a prospective abnormal shadow at a predetermined detecting level (column 44, lines 4-10).

a photographing condition input means for inputting photographing conditions under which the image of the object is taken (column 47, lines 46-50 and Figure 14B – here it is disclosed that the right and left breast are displayed simultaneously. It is therefore inherent, that information regarding which part of the body the image

Art Unit: 2623

represents and its orientation is input into the system. The examiner reads the term "photographing condition" broadly as it is commonly used in the art, and considers the body portion imaged, to be a type of photographing condition.)

Nakajima does not expressly disclose a detecting level changing means which changes the detecting level according to the photographing conditions input through the photographing condition input means.

Ellis discloses a detecting level changing means which changes the detecting level according to the photographing conditions (column 17, lines 26-29 – here the threshold is changed based on the variation in the light source, which is a photographing condition. As stated on line 13 of column 17, the purpose of using the threshold is to separate an object of interest, which means it is equivalent to a detecting level). If the concepts of Nakajima and Ellis described above are combined, then the invention would inherently contain the limitations that the prospective abnormal shadow detecting means detects a prospective abnormal shadow according to the detecting level changed by the detecting level changing means, and the photographing conditions used would be input by an input means.

It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to change the detecting level as in Ellis, when detecting prospective abnormal shadows in Nakajima, as they both involve detection from medical images. Doing so would help accommodate variation in photographing conditions like light sources (column 17, lines 26-29 of Ellis) and also help overcome the

problem of where to set the threshold level (column 17, lines 19-20 of Ellis), thus providing motivation.

As to claim 15, the limitations of the claim are rejected for the same reasons as given in the rejections of claims 7 and 13. Changing detecting level part by part is discussed in the claim 7 rejection and the remaining limitations are discussed in the claim 13 rejection.

As to claim 16, the limitations of the claim are rejected for the same reasons as given in the rejection of claim 8.

As to claim 17, the limitations of the claim are rejected for the same reasons as given in the rejection of claim 13.

As to claim 18, the limitations of the claim are rejected for the same reasons as given in the rejection of claim 13. Examiner notes that a broad term like "detection processing condition" can be read as a "detecting level" or at least a value that is inherently calculated in one of the intermediate steps when calculating the detecting level. Examiner also notes that a broad term like "detection processing condition" could also be read as simply a computerized representation of the photographing conditions.

As to claim 19, the limitations of the claim are rejected for the same reasons as given in the rejection of claims 13 and 18 (see the discussion in the claim 18 rejection).

As to claim 20, Nakajima as modified above further discloses that the filtering properties of a shape-dependent filter are employed in the detection processing (Column 44, lines 4-10 discloses that a morphology filter is used with a threshold. Also see Figure 26, element 140' and column 53, lines 44-50 and column 54, lines 22-25).

As to claim 21, Ellis as applied above further discloses an image conversion section which carries out predetermined image conversion processing on the image data on the basis of the photographing conditions (column 17, lines 13-16 discloses converting the image into a new image by a thresholding process, which is based on photographing conditions (as discussed in the rejection of claim 5). The other limitations of the claim are rejected for the same reasons as given in the rejection of claim 17.

As to claim 22, Nakajima as modified above further discloses that the image conversion processing can be frequency enhancement processing (Column 52 discusses frequency enhancement, see lines 41-44 in particular).

As to claim 24, the limitations of the claim are rejected for the same reasons as given in the rejection of claim 8.

As to claim 25, Nakajima as modified above, further discloses that the prospective abnormal shadow is a prospective micro calcification shadow (column 40, lines 9-14).

As to claim 29, Nakajima as modified above further discloses that the detecting level is changed by changing a value in an iris filter processing or by changing elements in a morphology operation (Column 44, lines 4-10 discloses that a morphology filter is used with a threshold, and changing of the threshold has been previously discussed in the rejection of claim 13. Also disclosed is use of an iris filter, column 51, lines 38-53).

As to claim 30, Nakajima as modified above further discloses that the detecting level is changed by changing a threshold value in an iris filter processing or by changing values of structural elements in a morphology operation (Column 49, lines 42-48 disclose the use of a judgment means with an iris filter. Changing of the threshold in the judgment means is discussed in the rejection of claim 13. Also see the rejection of claim 29).

As to claim 34, the examiner takes official notice that the degree of compression of an object is a photographing condition that is well known in the art. It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to use the photographing condition of breast compression, as it is well known in the art

Art Unit: 2623

of mammography. Doing so would enable the test to be more accurate, as individual differences in breast structure of patients could be taken into account, thus providing motivation.

Claims 6, 14, 23 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakajima and Ellis as applied to claim 5 above, and further in view of Ono (USPN 6,088,425).

As to claim 6, the combination of Nakajima and Ellis as applied above does not expressly disclose that the photographing condition is at least one of the tube voltage or the tube current of the radiation source, the irradiating time, the product of the tube current and the irradiating time, the degree of compression of the object when the object is photographed under pressure, whether a grid is used, the kind of the grid used, and the magnifying power.

Ono discloses that the photographing condition is at least one of the tube voltage or the tube current of the radiation source, the irradiating time, the product of the tube current and the irradiating time, the degree of compression of the object when the object is photographed under pressure, whether a grid is used, the kind of the grid used, and the magnifying power (column 11, lines 38-57).

It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to use a photographing condition such as those disclosed in Ono as a basis for threshold adjustment in the combination of Nakajima and Ellis as they both involve medical imaging. In the combination of Nakajima and Ellis, such threshold

Art Unit: 2623

adjustment is already taking place based on a photographing condition, and using a different condition in the place of the one currently used in the mentioned combination, would have been obvious. Doing so would help overcome the problem of where to set the threshold level (column 17, lines 19-20 of Ellis), and also give a user more choice in which photographing condition(s) to base the threshold setting on according to the particular application, thus providing motivation.

As to claim 14, the limitations of the claim are rejected for the same reasons as given in the rejection of claim 6.

As to claim 23, the limitations of the claim are rejected for the same reasons as given in the rejection of claim 6.

As to claim 35, the limitations of the claim are rejected for the same reasons as given in the rejection of claim 6.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in

scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 31, 32 and 33 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 6, 14 and 23 respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Contact Details

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ashutosh Upreti whose telephone number is (571) 272-7428. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 09/987,402

Page 13

Art Unit: 2623

AU

AU

January 3, 2006

JINGGE WU
PRIMARY EXAMINER

A large, stylized handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right, is written over the printed name and title.